

**DETAILED ACTION**

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action. Applicant's cancellation of claims 1-22 and 24-43 and amendment of claims 44-70, filed June 30, 2008, have been received and entered in full.
2. Claims 23 and 44-70 are under examination.

***Substance of the Interview***

3. Applicant contacted the Examiner October 30, 2008 regarding the prosecution of the instant application. In the interview, Applicant stated that the 'Appeal Brief' filed August 21, 2008 had been mistakenly sent because Applicant was under the impression that the last action sent by the Examiner was a final Office Action. The last Office Action mailed to Applicant on April 28, 2008 was a non-final action. Applicant has requested that the Examiner disregard the 'Appeal Brief' filed August 21, 2008 and instead would like the Examiner to respond to the 'Remarks' filed June 30, 2008.

***Response to Arguments***

4. Applicant has stated that page 29 of the specification has been amended to correct an error (see page 2, 1<sup>st</sup> paragraph of 'Remarks' filed June 30, 2008).

The Examiner acknowledges the amendment.

5. Applicant's claim amendments, see 'Claims' filed June 30, 2008, have overcome the claim objections on page 3 of the Office Action mailed April 28, 2008.

The objections have been withdrawn.

6. Applicant's arguments, see pages 2-3 of 'Remarks' filed June 30, 2008, regarding the 35 USC 112, first paragraph rejection on pages 3-4 of the Office Action mailed April 28, 2008 have been fully considered and found persuasive.

The rejection has been withdrawn.

7. Applicant's timely filed terminal disclaimer, filed June 30, 2008, has overcome the double patenting rejection on pages 4-5 of the Office Action mailed April 28, 2008.

The rejection has been withdrawn.

8. Applicant's claim amendments, see pages 13-26 of 'Claims' filed June 30, 2008, have overcome the 35 USC 103 rejections on pages 5-9 of the Office Action mailed April 28, 2008.

The rejections have been withdrawn.

9. Applicant's cancellation of claims 71-79, see page 26 of 'Claims' filed June 30, 2008, has rendered the 35 USC 103 rejection on page 9, paragraph #3 to page 11, 2<sup>nd</sup> paragraph of the Office Action mailed April 28, 2008 moot.

#### ***Claim Objections***

10. Applicant is advised that should claim 44 be found allowable, claims 53 and 62 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 103***

11. Claims 44-70 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Eubanks (U.S. Patent No. 5,330,547, July 19, 1994), in view of Eubanks (Theor Appl Genet 94: 707-712, 1997). The rejection is repeated for the reasons of record as set forth on pages 5-7 of the Office Action mailed April 28, 2008). Applicant's arguments, filed June 30, 2008, have been fully considered but are not persuasive.

Applicant argues that the Examiner's statement that the 1994 patent claims backcrossing said hybrid plant at least once to a maize plant is incorrect (see page 3, last paragraph of 'Remarks' filed June 30, 2008).

This is not persuasive. It is noted that the cited citation regarding the Examiner's statement on page 6, line 1 of the Office Action mailed April 28, 2008 did not in fact state that the 1994 patent claims backcrossing said hybrid plant at least once to a maize plant, but rather stated that the claims under examination at the time of the rejection read on a method for producing a maize plant wherein said method included backcrossing said hybrid.

It is noted that the Examiner did not mention claim 6 of the 1994 patent in the rejection on pages 5-7 of the Office Action mailed April 28, 2008 or that a backcrossing step was used in the claim. However, backcrossing is taught in the 1994 patent as stated on page 6 of the Office Action mailed April 28, 2008 (see, for example column 2, lines 30-34 of the 1994 patent) and one of ordinary skill in the art would appreciate that backcrossing is a means of introgressing genes into a maize plant.

Applicant argues that there is no indication in the dataset generated by the 15 RFLPs employed in Eubanks (1997) that precise rearrangements between the parental genomes were creating large numbers of novel alleles and that Eubanks (1997) underscores that it would not have been obvious to one skilled in the art that (1) large numbers of novel alleles are generated by crossing *Tripsacum* and teosinte; (2) many of the same novel alleles would be found in progeny of different parents, and (3) the novel chimeric alleles would be stably inherited in subsequent generations of crosses and backcrosses to maize (see page 4, 1<sup>st</sup> paragraph of 'Remarks' filed June 30, 2008).

This is not persuasive. The rejected claims read on a maize plant comprising one or more restriction fragments selected from a group of restriction fragments wherein said plant is produced by crossing a maize female plant with either a *Tripsacum*-teosinte male plant or a teosinte-*Tripsacum* male plant to produce a trigeneric hybrid maize plant and backcrossing the trigeneric hybrid plant at least once to a maize plant.

Eubanks (1994) teaches crossing a maize plant with a (teosinte x *Tripsacum*) plant (see, for example, column 3, line 64 to column 4, line 2, where it teaches "Zea *diploperennis* [i.e. teosinte] and *Tripsacum dactyloides* have been crossed to produce a novel hybrid referred to as *Tripsacorn*...[a] bridging mechanism to transfer *Tripsacum* genes into maize is provided by *Tripsacorn* which is cross-fertile with maize [and] promises to improve corn by imparting numerous beneficial characteristics including pest resistance and drought tolerance"). Thus, Eubanks (1994) teaches crossing a maize female plant with either a *Tripsacum*-teosinte male plant or a teosinte-*Tripsacum* male plant to produce a trigeneric hybrid maize plant.

In addition, Eubanks (1994) teaches backcrossing to introgress genetic material into maize (see, for example, column 2, lines 30-34, where it teaches “introgression of *Tripsacum* genetic material into maize...has required years of complicated, high risk breeding programs that involve many backcross generations to stabilize desirable *Tripsacum* genes in maize”).

One of ordinary skill in the art would appreciate that trigeneric hybrid plants can be backcrossed at least once to a maize plant and, in addition, would understand that such a backcross would stabilize desirable *Tripsacum* genes as taught by Eubanks (1994).

With regard to Applicant's arguments regarding the Eubanks (1997) reference, the reference was used to teach screening plants for the presence of one or more restriction fragments; however, the claims, as amended, do not require such screening. Applicant's assertion that there is no indication in the dataset generated by the 15 RFLPs employed in Eubanks (1997) that precise rearrangements between the parental genomes were creating large numbers of novel alleles is irrelevant because Eubanks (1997) does teach the use of restriction fragments to screen maize plants. See MPEP 2141 (III) where it teaches, “mere existence of differences between the prior art and an invention does not establish the invention's nonobviousness.” *Dann v. Johnston*, 425 U.S. 219, 230, 189 USPQ 257, 261 (1976). One of ordinary skill in the art would have been able to use RFLPs to screen maize plants regardless which dataset of RFLPs are employed because Eubanks (1997) teach the use of RFLPs to identify maize plants.

Applicant's assertion that Eubanks (1997) underscores that the claimed invention would not have been obvious to one skilled in the art is irrelevant because Eubanks (1997) was used to teach screening plants for the presence of one or more restriction fragments; however, this limitation has been removed from the now amended claims. Nevertheless, it is noted that Eubanks (1994) teaches crossing a maize plant with a (teosinte x *Tripsacum*) plant and this would have produced the trigeneric hybrid maize plant now claimed in the amended claims.

12. Claims 40-70 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Eubanks (US Patent No. PP7,977, September 15, 1992), in view of Eubanks (Theor Appl Genet 94: 707-712, 1997). The rejection is maintained for the reasons of record as set forth on pages 7-9 of the Office Action mailed April 28, 2008. Applicant's arguments, filed June 30, 2008, have been fully considered but are not persuasive.

Applicant argues that the Eubanks 1992 patent does not teach crossing a maize plant with a teosinte-*Tripsacum* plant (see page 5, bridging paragraph of 'Remarks' filed June 30, 2008).

This is not persuasive. MPEP 2141 (III) states, "[p]rior art is not limited just to the references being applied, but includes the understanding of one of ordinary skill in the art...[and] [t]he gap between the prior art and the claimed invention may not be so great as to render the [claim] nonobvious to one reasonably skilled in the art.<sup>1d</sup>" . In determining obviousness, neither the particular motivation to make the claimed invention nor the problem the inventor is solving controls. The proper analysis is

whether the claimed invention would have been obvious to one of ordinary skill in the art after consideration of all the facts.

In the instant case, it would have been obvious to one of ordinary skill in the art to backcross the trigeneric hybrid at least once to maize because it is known in the art that agronomic genes of interest are backcrossed into maize plants. Eubank (1992) teaches that genes for drought tolerance and enhanced pest resistance can be backcrossed into maize. Applicant states that the word "backcross" in the Eubanks (1992) patent is in error because an F1 hybrid by definition is not a backcross; however, one of ordinary skill in the art understands that backcrossing is used to introgress genes of interest into maize plants and would appreciate that trigeneric hybrids can be backcrossed with maize.

Applicant argues that there is no indication in the dataset generated by the 15 RFLPs employed in Eubanks (1997) that precise rearrangements between the parental genomes were creating large numbers of novel alleles and that Eubanks (1997) underscores that it would not have been obvious to one skilled in the art that (1) large numbers of novel alleles are generated by crossing *Tripsacum* and teosinte; (2) many of the same novel alleles would be found in progeny of different parents, and (3) the novel chimeric alleles would be stably inherited in subsequent generations of crosses and backcrosses to maize (see page 5, 1<sup>st</sup> paragraph to page 6, lines 1-3 of 'Remarks' filed June 30, 2008).

Eubanks (1992) teaches crossing a maize plant with a (*teosinte* x *Tripsacum*) plant (see, for example, column 2, lines 14-21, where it teaches "Tripsacorn evidently

provides a natural bridge for introducing *Tripsacum* germ plasm into corn...[t]he results of crossing *Tripsacum*...to corn were distinctly different from the results of crossing the patented plant *Sun Dance*...to corn". One of ordinary skill in the art would understand that this teaches that maize can be crossed with *Tripsacum* x *teosinte* plants because as discussed above *Tripsacum* is produced from a cross of *Tripsacum* x *teosinte*)

In addition, Eubanks (1992) teaches backcrossing to introgress genetic material into maize (see, for example, column 2, lines 9-11, where it teaches "[i]n preliminary field trials of backcrosses to a commercial corn line, drought tolerance and enhanced pest resistance were observed in the F1 generation". One of ordinary skill in the art would appreciate that trigeneric hybrid plants can be backcrossed at least once to a maize plant).

With regard to Applicant's arguments regarding the Eubanks (1997) reference, the reference was used to teach screening plants for the presence of one or more restriction fragments; however, the claims, as amended, do not require such screening. Applicant's assertion that there is no indication in the dataset generated by the 15 RFLPs employed in Eubanks (1997) that precise rearrangements between the parental genomes were creating large numbers of novel alleles is irrelevant because Eubanks (1997) does teach the use of restriction fragments to screen maize plants. See MPEP 2141 (III) where it teaches, "mere existence of differences between the prior art and an invention does not establish the invention's nonobviousness." *Dann v. Johnston*, 425 U.S. 219, 230, 189 USPQ 257, 261 (1976). One of ordinary skill in the art would have

been able to use RFLPs to screen maize plants regardless which dataset of RFLPs are employed because Eubanks (1997) teach the use of RFLPs to identify maize plants.

Applicant's assertion that Eubanks (1997) underscores that the claimed invention would not have been obvious to one skilled in the art is irrelevant because Eubanks (1997) was used to teach screening plants for the presence of one or more restriction fragments; however, this limitation has been removed from the now amended claims. Nevertheless, it is noted that Eubanks (1992) teaches crossing a maize plant with a (*teosinte x Tripsacum*) plant and this would produce the trigeneric hybrid maize plant now claimed in the amended claims.

#### ***Concluding Comments***

13. On pages 6-9 of the 'Remarks' filed June 30, 2008, Applicant argues that the genetic material disclosed in the instant application is unprecedented in the plant literature and would not have been obvious to one skilled in the art of genetics and plant breeding and rather than inheriting an allele from each parent, the progeny of crosses between *Tripsacum* and *teosinte* exhibit novel alleles formed by intergeneric recombination between the distinctive genomes of *Tripsacum* and *teosinte*.

Applicant's comments are noted, but are not persuasive. The rejected claims read on a maize plant comprising one or more restriction fragments selected from a group of restriction fragments wherein said plant is produced by crossing a maize female plant with either a *Tripsacum-teosinte* male plant or a *teosinte-Tripsacum* male plant to produce a trigeneric hybrid maize plant and backcrossing the trigeneric hybrid plant at least once to a maize plant. As stated above, Eubanks (1994) teaches crossing

a maize plant with a (teosinte x *Tripsacum*) plant and Eubanks (1992) teaches crossing a maize plant with a (teosinte x *Tripsacum*) plant. In addition, Eubanks (1997) teach the use of RFLPs to identify maize plants.

See MPEP 2112(I) where it teaches, “[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer. *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999)”.

Thus the claiming of a new use, new function or unknown property which would be naturally present in the prior art does not necessarily make the claim patentable.

#### ***Conclusion***

14. No claims are allowed.
15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Contact Information***

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEITH O. ROBINSON whose telephone number is (571)272-2918. The examiner can normally be reached on 7:30 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Keith O. Robinson, Ph.D.  
Examiner, Art Unit 1638

/Anne Marie Grunberg/

Supervisory Patent Examiner, Art Unit 1638